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DISEASES OF THE NERVOUS SYSTEM

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

PUBLISHED MONTHLY for the PHYSICIAN in the GENERAL PRACTICE of MEDICINE

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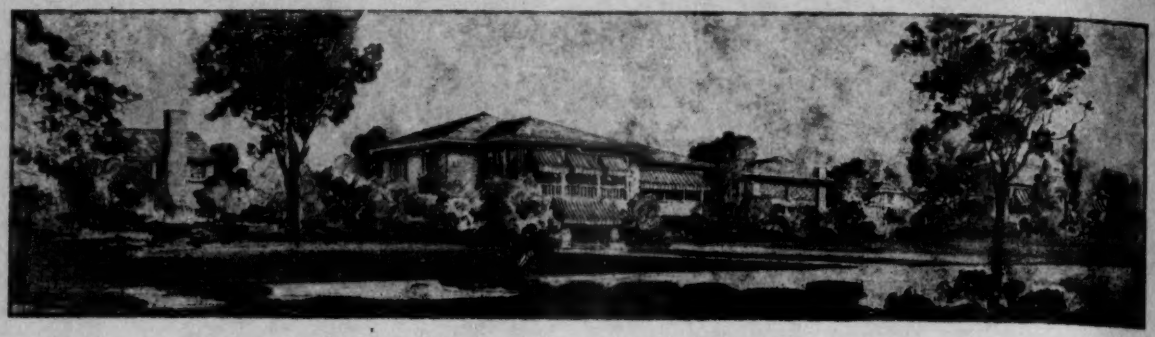

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DISEASES of the NERVOUS SYSTEM

(PUBLISHED MONTHLY)

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

EDITORIAL COMMENT

Regimented Rhetoric

More than once has the indictment been made that medical writing is dull, heavy in useless verbiage, and as "dry and dusty as the sands of Sahara." Scientific articles are said to be bald and sterile recordings cut to a hidebound pattern. They often include long tables which are perused only by the proofreader.

The latest barb thrown at our literary foibles comes from Hutchinson, in a recent number of the British *Lancet*, where he claims that "too many doctors choke their offices with unopened magazines useful to throw at the cat," that there is too much "verbal diarrhoea" and "mental exhibitionism" emanating from medical writers.

Why this aversion to forthright simplicity in medical writing? Why the dull, nerve-jading stereotypy? Without entirely condoning the traditional style found in the medical article of today, perhaps something should be said in its defense. The regimentation which prevails in the model article appearing in medical journals is probably the result of hard-bitten expediency rather than of a desire to bore the reader. It is a matter of utility to state the problem briefly, give its proper historical setting, crisply describe the experiments, record the results and integrate the findings into the total body of medical knowledge as simply as is possible. Experience has pointed out that this general formula for a medical article is most efficient, compact and incisive, even though its style may not scintillate or bristle with sprightly syntax.

It is practically axiomatic that scientific writing is dull in the sense that it does not stimulate the emotions. The truly scientific medical mind is intuitively suspicious of anything that emphasizes affect rather than fact. Medicine has learned that a colorful style in writing and speaking is too often a cover-all for muddy thinking, that it is the poorly informed who seize upon sweet-sounding generalizations, that flamboyant rhetoric is the language of the charlatan.

If to be interesting, medical writing must appeal to the mind by being more dramatic, or must resort to "eye-catching phraseology" then it had better remain what it is. For instance it has been suggested that the biography of the red blood corpuscle "from its birth in the bone-marrow, in its capillary wanderings and its burial in the spleen or its tragic end in hemorrhage" can be made a "vivid odyssey" instead of a dry physiological discourse. This implies a high recommendation of the use of the simile and the parable in scientific writing. Its advocate must be reminded that such allegoric devices, stimulating though they may be, are highly incompatible with modern scientific thinking. They are inept conveyors of fact, being dangerously allied to the fable.

That medical writing lacks romantic style should be of no great concern, but that it lacks simplicity and lucidity is always a grave charge. It would be well for every physician who writes to pause before he sets down a technical term or a cumbersome phrase and give thought to the possibility of substituting something in simple, Anglo-Saxon prose. At least one advantage which accrues from the writing of articles for laymen and of popular "pot-boiler" books is the practice the physician gains in the use of a lucid style of writ-

(Continued to page 179)

Psychotherapy in General Practice

OSKAR DIETHELM, M.D.
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Dr. Diethelm was born in 1897 and received his Doctorate of Medicine from the Universitat Zurich Medizinische Fakultat, Switzerland in 1922. At the present time, Dr. Diethelm is Psychiatrist-in-Chief of the New York Hospital (Payne Whitney Psychiatric Clinic) and Professor of Psychiatry at Cornell University Medical College, which post he has held since 1936. Dr. Diethelm is also Assistant Psychiatrist for the Johns Hopkins Hospital and Associate Professor of Psychiatry at the Johns Hopkins Medical School, Baltimore. Dr. Diethelm is a member of the American Psychiatric Association.

In present-day medicine, the patient is studied from the point of view of structural condition, physiological functions, and personality. By personality is meant the individual with his reactions to life situations, influenced by his past experiences and his attitude to the present and future. Treatment may be divided along three lines—healing by direct changes of structure and physiological functions, or, by influencing personality functions through structural or physiological changes, or, by direct changes of the personality functions through psychotherapy. "Psychotherapy includes all kinds and ways of utilizing psychologic means to achieve beneficial psychobiologic changes."* It makes use of simple explanations and suggestions for changes of personal attitudes and life activities, of a more far-reaching analysis of the person, of reassurance, of suggestion and hypnosis, of the re-education of faulty habits, of the outlining of a healthy way of living, and of the removal of unhealthy influences by environmental adjustments.

Psychotherapy is used constantly in general practice, not only for so-called nervous conditions, but for the correction of all ills which affect the patient as a person. In psychoneuroses, in mild depressions, in personality reactions due to aging or to other organic changes in the brain, psychotherapy is the essential means of treatment. In physical illnesses with varying degrees of personality reactions, a correspondingly intensive psychotherapy must accompany the physical treatment indicated. Well-known examples in this group are gastric ulcers, hyperthyroidism, essential hypertension, and diabetes. The problem of making a patient accept changes in his mode of living, or the restriction of privileges (use of tobacco, alcoholic beverages, special food) is frequently most difficult, but it presents the essential basis for the physical treatment. In other patients, the problems and difficulties of daily life need study and correction. Here the family physician is in a position to play a most helpful role. In the increasingly complex situations of modern life, and especially in urban and industrial districts, the physician must learn to perform a similar task. Medicine has recognized this obligation and efforts have been made to teach psychotherapy. The contention that it is an art which depends on the physician's talents is only partly correct. Each physician must be acquainted with the psychotherapeutic methods. The extent to which he masters and perfects these methods depends on his personality, general knowledge, and interests. Practicing psychotherapy with a conscious attempt to recognize what he is doing and learning from experience, he acquires increasingly better therapeutic results.

1. *Contact with the patient*—Psychotherapy starts with the first contact. The patient should have an opportunity to present his complaints fully to the physician, who should listen carefully, patiently, and without skepticism. This presentation of the patient's observations, which reveals his attitude to the illness, should be made to the physician alone. Where it is indicated, relatives should have their own confidential interview. Every child, even in the younger age group, should have the opportunity to state his observations and views. It will give him confidence in the physician, and much anxiety can thus be allayed. At the end of this first interview, and after the more or less complete physical examination, the physician must present a formulation to the patient in language which he can fully comprehend, explaining what the complaints mean and why further study or a certain kind of treatment is indicated. In each subsequent contact, the same principles should be kept in mind; i. e., the physician

* Diethelm, Oskar: *Treatment in Psychiatry*, by permission of The Macmillan Company, Publishers.

should offer the patient an opportunity to express new observations, but not allow undue dwelling on them. When such overconcern is obvious, and when the patient has a tendency to repeat previously stated complaints, he should be made aware of this tendency. He should then be advised to develop an attitude of full belief in the physician's understanding of his illness and be made to feel that he can depend on the latter's careful observation of future developments.

2. *Clarification of the patient's problem*—A detailed discussion of the patient's life is best carried out after a preliminary or complete physical examination, dependent on when the physician recognizes the influence of personality factors in the complaints and signs presented. After the physical examination and an explanation by the physician, the patient will be more relaxed and will also understand the need for discussing his personal life. To achieve this rapport, the examination must be done in such a way that the patient's anxiety and fear will not be increased; his suspense should be relieved by a statement which stresses that the findings are not sufficient to explain all, or some, of the complaints. If this is not done thoughtfully, the method varying according to the individual patient, he may be unwilling to participate in a discussion of his personality because he is resentful or distrustful of the physician; or he may be ready to tell himself to try to forget his complaints without adjusting the causes. The physician should be dissatisfied with such results, since every complaint has a cause.

In gathering a patient's history, it is essential that one obtain the dates of all important occurrences. This refers to various complaints; illnesses; personal experiences; changes in living in general, in work, and in socio-economic conditions. Relationships in time become obvious and make clear to the patient the influences which affected his health, or allow the physician to point out certain facts which led to stress, thereby affecting the health. The explanation of the patient's reactions lies either in his personality or his physical constitution. For a satisfactory explanation, physician and patient must consider the individual personality.

The study of personality may be brief, extending to a few orienting questions, or far-reaching, according to the medical situation. In every case, the following points should be kept in mind: (a) The general intelligence, as revealed in the conversation and in the judgment shown in life situations, has much bearing. The physician's choice of words and manner of presentation depend on the patient's command of language and his intelligence. (b) Emotional factors are always important. Difficulties may arise from a tendency to moodiness, discouragement or undue optimism, anxious anticipation of future mishaps, resentment to past or present interferences, or insufficient emotional control. (c) Strivings and interests may be too strong a driving force. When coupled with an inability to recognize intellectual, emotional, or physical shortcomings which make their gratification impossible, they may lead to undesirable efforts and tension. Stubborn active and passive resistance may affect health. (d) Standards of performance and goals should correspond to individual capacities of achievement and the opportunities life offers. A certain amount of self-denial is necessary. (e) The attitude to one's body and to the instinctive desires must always be investigated. There may be overconcern toward and constant observation of the physical condition, or undue neglect of the same. Pride in good health may suffer a rude shock because of a physical illness and may result in resentment or discouragement. The type of fatigue and need for rest and physical recreation vary. The attitude to food should be investigated. Sexual desires may be well controlled, corresponding to the individual life situation, or controlled only with difficulty and accompanied by anxiety and remorse. Some need to develop a willingness for healthy control. (f) Material needs may be exaggerated or insufficiently evaluated. Careful scrutiny of the individual social and economic situation is indicated. (g) The ability to deal with oneself deserves attention. Self-reliance implies confidence in oneself and an understanding of one's abilities and the obstacles confronting one. Self-restraint is necessary as well as a correct sense of proportion of one's personal assets and shortcomings, as demonstrated in one's successes and failures in life. (h) Social needs should be accompanied by a healthy adjustment to the group, preventing an undue need

for privacy and isolation or dependence on others. Self-consciousness and shyness should be studied whenever they interfere with healthy participation with others. All the various personality features should be evaluated in the setting of the total personality. Assets and shortcomings exist in everybody. By recognizing them, a person is able to find ways to correct faulty tendencies and to develop more helpful features. The results of a study of personality should be constructive. To obtain this, the physician must point out the constructive possibilities. The average person has a tendency to analyze failure and to take success for granted, accepting the fact that he is in good physical and mental health, and not interested in finding out what keeps him in such a satisfactory condition.

In asking questions relating to a patient's personal life and to his personality, quiet tact is necessary. The patient should be allowed as much spontaneous expression as time permits. On the other hand, the physician must keep in mind the points which need to be covered. Most problems can be dealt with in a direct way if one asks about sensitive points in connection with broader topics, or explains briefly the need for going into greater detail. For example, a physician who is accustomed to considering sexual activities from a broad psychobiological point of view will encounter little difficulty in obtaining an accurate sexual history. The problem of sexual tension and the means of its control and relief can be related to its frequent occurrence with the menstrual cycle. In male patients, inquiring into the frequency of spontaneous emissions will offer a lead.

3. *Reassurance*—To dispel apprehension and to restore confidence is important. Every patient needs assurance that his condition is well understood by the physician. This is obtained by careful study and attention. Furthermore, he wants to hear of the progress. This information should be offered by the physician's pointing to the facts which demonstrate improvement, not by merely offering encouraging words. The patient should not become dependent on reassurance, but must learn to develop increasing self-confidence and a sound perspective with regard to his symptoms. This is especially important where anxiety, worry, and depressive moods play a role.

4. *Suggestive therapy*—Suggestion enters into any therapeutic situation. By this is meant the influence which is exerted by the patient's belief in the efficacy of a therapeutic procedure. The results are physiologically far-reaching. Most physicians obtain this result through reassurance, or by means of palliative and physiotherapeutic procedures. These are offered with the strong implication that they achieve results which they really do not on a purely physiological basis. It is best that a physician realize the possibilities of suggestion. By believing in the results which can be obtained psychobiologically, he will offer his advice with quiet assurance. Suggestions should always be based on a factual study of the situation and the personality involved. The patient's reaction to the physician and to authority shows how suggestions should be formulated to produce in the patient a belief, and not a negative reaction. A physician must be convinced of the correctness of his predictions. Facts must be indisputable to carry suggestive power and arguments must be avoided.

5. *Outlining the mode of living*—A healthy balance of work, rest, and suitable recreation, with attention to physical needs, is important for everybody, but rarely carried out satisfactorily by the average person. Recreation, for example, refers to physical, social, intellectual, and aesthetic activities, according to individual needs, suited to the economic situation, and adjusted to what is possible in one's location. Religious activities may be needed as such, or offer in addition a valuable means of socialization. Eating should not serve merely physiological purposes, but should be an opportunity for relaxation. Food should be offered in an attractive form in an environment which suits the individual taste. The time of sleeping is as important and individually different as the total amount. The marital partners and other members of the family may have different needs, and a healthy compromise among all those concerned is often difficult to achieve. In physical and psychoneurotic invalids and in patients who are not accustomed or able to lead a well regulated life with healthy work and recreational activities, the physician must outline a routine, preferably in the form of an hourly schedule, which keeps the patient busy and avoids monotony.

6. *Re-education*—Faulty behavior, activities, and ways of thinking must be corrected systematically. This is based on the patient's increasing understanding of himself, with the physician pointing out the recurring mistakes and their resulting difficulties. One should avoid doing this to an extent which irritates or discourages the patient, and well-planned reassurance should accompany it. Anticipation of future mishaps, hypochondriacal self-observation, and indulgence in undesirable preoccupations are faulty habits of thinking of which the patient should become increasingly aware and learn to break by turning immediately to healthier thoughts and by becoming interested in whatever he is doing.

7. *Environmental adjustment*—An understanding of the life situation will demonstrate the possibility of adjustment. The correction of minor obstacles may often prove beneficial beyond expectation. The question to be considered first is: What in the individual made him react with illness to difficulties which others can stand without a detrimental reaction? Furthermore, is there a way of overcoming at least some of the obstacles; is there a way of avoidance, or if not, how can the individual accept them and make the best of them? A physician may occasionally spend his time very profitably in discussion with other members of the family, e. g., marital partner or parents, with the result of modifying their personalities.

8. *Therapeutic interviews*—These should be well planned and not extend over an hour. At the end, physician and also patient should have an understanding of what has been obtained and have a sense of "worthwhileness." An agreed time limitation, varying from ten minutes to an hour, will stimulate the patient to contribute as much as possible and give him an increasing value of time. Present and past experiences should be analyzed whenever this may increase self-understanding. Desires, ambitions, fears, and preoccupations deserve constant attention. Although the analysis of dreams belongs among the therapeutic tools of the psychiatric specialist, an inquiry into dreams should not be omitted by the general practitioner. Anxiety dreams and nightmares indicate general anxiety, or, frequently, toxic conditions, e. g., when under the influence of opiates or prolonged sedation.

9. *Patient-physician relationship*—The physician should study the patient's reactions to him, recognizable in behavior and in verbal expressions. He must try to keep an objective, critical attitude and find means to correct undesirable reactions, such as fear, resentment, distrust and lack of confidence, undesirable dependence, and admiration or erotic feelings. On the other hand, the physician should be aware of his own personal reactions, and have the courage to analyze them and draw the necessary conclusions. During prolonged treatment, this mutual relationship may undergo considerable change. The physician who understands himself best is the one who is most successful in psychotherapy.

It has been claimed that psychotherapy is too time-consuming for the general practitioner. This position is untenable. The physician must treat the patient in accordance with the present status of medical knowledge. New ways must be found if the present ones are inadequate. It is the obligation of medical schools to instruct students in the essential methods of psychotherapy. It is the task of the hospitals to offer adequate training. The experience in the Department of Medicine of the New York Hospital illustrates a practical approach to this problem. Every intern is obliged to investigate the patient's personality and life history carefully, whenever personality factors deserve special attention. The material is discussed with the psychiatrist who, after an examination of the patient, outlines the treatment. The intern, or assistant resident, may be able to treat some conditions with merely cursory advice and supervision. In other patients, internist and psychiatrist carry out a combined treatment. In a third group, the special skill of the psychiatrist or transfer to a psychiatric hospital is indicated. After discharge, many patients receive further psychotherapy by the internist in the Medical Out-Patient Department, which is attended by the psychiatrist.* A similar educational program is followed in the Department of Pediatrics.

It has been demonstrated that psychotherapy is not too time-consuming after the physician has once mastered the most essen-

* Ripley, Herbert S.: "Psychiatric Consultation Service in a Medical In-Patient Department, Its Function in Diagnosis, Treatment and Teaching," *American Journal of the Medical Sciences*, Vol. 198, No. 4, 1939.

tial facts. More time may be given for the initial investigation. When interviews are planned and carried out according to the above rules, considerable time is saved at the subsequent visits. This becomes especially obvious in chronic physical conditions where emotional reactions and socio-economic factors are important, and in hypochondriacal and anxiety reactions. In the stage of convalescence after a physical illness, psychotherapy is frequently important to insure rapid recovery. The family physician is in a more fortunate position than the specialist who has to spend additional time in order to understand the social and economic conditions and to propose temporary or permanent changes in living.

EMOTIONAL ILLNESS
Pathways, Manifestations, and Treatment

BEVERLEY R. TUCKER, M.D., F.A.C.P.
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Dr. Tucker is Emeritus Professor of Neuropsychiatry at the Medical College of Virginia, having resigned the full professorship last year, which he had held for twenty-six years. He is Chief of Staff of the Tucker Sanatorium and is on the staffs of several other hospitals. Dr. Tucker is also a member of the American Board of the American Hospital of Paris and the Board of the A. I. duPont Hospital at Nemours, Delaware. He has written widely on medical and literary subjects in the form of books and magazine articles. Dr. Tucker is a member of the American Neurological Association and the American Psychiatric Association, and is certified by the American Board of Psychiatry and Neurology.

Emotions consist of those psychosomatic feeling-tones, frequently the by-products of instinctual urges, which, accumulating evidence indicates, have a brain center in the gray matter of the hypothalamic area and travel along the pathways of the sympathetic and the parasympathetic nervous systems. Further, these feeling-tone impulses appear to be connected on the one hand through vegetative fibers with the larger basal ganglia, the posterior pituitary, the gray matter in the neighborhood of the optic chiasm, the hippocampal, the motor, and other cortical gray matter, and on the other hand also through sympathetic and parasympathetic fibers with the smooth muscle fibers, the endocrines, the viscera, and the skin and mucous membranes.

While there are certain text books on neurology and even some on physiology in the indices of which the term emotion can not be found, still there is a growing understanding of the whole matter, so that the term *emotional illness* may be used with as much justification as the terms: mental illness, neurosis, or even upper or lower motor neuron disease, and with much more justification than is shown in the use of the terms neurasthenia, psychoneurosis, functional nervous disease, and a host of others.

History

Best and Taylor[1] feel that the general opinion of physiologists is that the hypothalamic nuclei are associated in man with certain emotional states, fear, anger, etc., and there is evidence also that herein situated are the sympathetic and parasympathetic centers. The hypothalamic nuclei include (a) supraorbital nuclei and their connections, (b) the nuclei of the tuber cinereum (supposed sympathetic center), (c) the paraventricular (third ventricle) or posterior hypothalamic nuclei, (d) the mammillary nuclei (connected with the olfactory area)*.

Cannon[2] thinks that from the thalamic and hypothalamic regions come such emotions as fear, sorrow, joy, and rage, which through connections with the sympathetic system produce visceral changes and states that these reactions are so definite that emo-

* Bard showed "sham rage" in injury to the hypothalamic area and some of its associations in animals. Best and Taylor say, "It has been suggested that certain conditions in man; i. e., manifestations of fear in "shell shock," the unreasoning rage in drunkenness, and the emotional instability of certain mental derangements associated with degenerative changes in the cortex may be due to release of the hypothalamus from cortical control." Other things, disordered metabolism (fat, carbohydrate, and water), disturbance of sleep, drowsiness or wakefulness, emotional manifestations (laughing, crying, sham rage), sympathetic or parasympathetic stimulation or disturbed sex functions, may occur and give rise to diabetes insipidus and emotional diencephalitic epilepsy and narcolepsy; also catalepsy, i.e., transient attacks of weakness of the knees, becoming weak with laughter, jaw drops, and transfixation.

tion may be defined physiologically in terms of reaction patterns, some somatic and others visceral.

Sadler[3] feels that there are definite emotional brain centers (centers of dominating temperamental tendencies) in the "masses vaguely known as the basal ganglia" and defines emotion as the capacity for emotional response.

Purves-Stewart[4] divided emotional impulses into centripetal and centrifugal and states "few neuroses occur without some emotional antecedent," the chief exception being concussion neurosis. He says also that fright neurosis is a vegetative neurosis common in war time in soldiers of the sympatheticotonic type.

Wundt[5] in the early part of this century pointed out that feeling-tones, even when only subjectively perceptible, betray physical symptoms; also that the product of modified patterns, produced through the influence of the central nerve ganglia, through either stimulation or blocking, brings about normal auto-regulation of various emotions. He felt that analogous phenomena could be produced through the higher centers as well as through peripheral stimuli.

Freeman and Watts[6] report autonomic disturbance after frontal lobectomy. They indicate that emotions are affected because of the connection of the fibers between the frontal lobe and the thalamus.

Grinker[7] speaks of the olfactory tracts and the cortex, the hypothalamus and the autonomic nervous system as still being connected with the energies of instinctual life which, in their higher forms, we call emotions. After discussing the hypothalamus, he concludes that the hypothalamus is connected by a two-way vegetative system between the cortex and the periphery, and cites Bard as showing conclusively that the central autonomic center resides in the hypothalamus.

Jelliffe[8] has called attention to the relation of encephalitis to mental and emotional life and indicates the connections between autonomic nervous system disturbance and behavior reactions, sleep disturbance, rage attacks, and schizophrenia.

McKinney[9], in an article published in 1930, discusses the various ideas and definitions of emotions up to that date.

Lund [10] has just published a most excellent book on emotions, in which he reviews past and present theories. He proceeds by indicating that emotion is not a response to or a form of conscious content, but agrees with Bentley that it is a complex activity involving beginning, course, and ending. He finds himself in general agreement with Cannon, Bard, and Dana that emotional changes within the somatic as well as the visceral system have their origin in the region of the hypothalamus of the diencephalon. He also appears to believe that emotions travel with a cortical control through the autonomic nervous system and its connection with the cerebrospinal system.

The writer[11], in a paper entitled *The Emotion-Reason Balance,* borrowed Pavlov's term as applied to reflexes and spoke of conditioned emotions and called attention to the fact that more or less modernly the stimulus may excite emotions from a great distance through such mediums as the ocean cable and the radio. Further, beside ordinary emotional manifestations, man may, through the complexity of his emotions, sacrifice his life to save others or commit suicide, or do murder; he may turn dare devil or coward; his body metabolism may change; he may become physically, or nervously, or mentally ill; he may even die from uncontrolled emotions. If these things are accepted, then the term emotional illness is surely justified.

Centers and Pathways

From the authorities quoted there seems but little if any doubt that there exist in the hypothalamic area definite centers of emotion and centrifugal and centripetal sympathetic and parasympathetic pathways connecting these hypothalamic centers with various portions of the brain—the cortex, the basal ganglia, other scattered gray matter, the medulla, the cord, the posterior pituitary, and, outside of the brain, with the endocrines, and the viscera, the smooth muscles, the skin, and mucous membrane. It must be remembered that motion, sensation, vision, and other functions may be involved so that an emotional impulse may travel either a selected pathway of its own, or may spread to the extent of becoming a whole-body reaction as in trance for escape, or in rigid immobility and inability to speak from fright.

The hypothalamic area includes the gray matter of the subthalamic nuclei; i. e., the hypothalamic nucleus (Corpus Luys), the substantia nigra, the red nucleus, the mammillary bodies, the tuber cinereum, and the nuclei near the optic chiasm. Some investigators include the posterior pituitary and the infundibulum, but the writer prefers to consider this an endocrine gland. Dr. Harvey Cushing, in his book, *The Pituitary Body and Hypothalamus,* gives some illuminating information on this subject.

A question arises as to whether the basal and hypothalamic ganglia are, phylogenetically, remnants of cortical gray matter cut off in the invagination of the brain to fit the skull or whether they are specific areas of gray matter protectively placed because of their importance. Although more difficult to account for, the latter view would seem the most probable.

The centers and pathways will probably be best understood when presented in diagram form.

Emotional flows

Accepting the emotional centers and pathways, it now behooves us to consider the manifestations of emotional impulses or flows. To do this is not as simple as one might think. McDougall classified "powerful instincts" and the primary emotions coming from them as follows:

Instinct:	*Emotion:*
Escape	Fear
Combat	Anger
Repulsion	Disgust
Parental	Love and tenderness
Mating	Lust
Curiosity	Wonder
Submission	Humility
Assertion	Elation

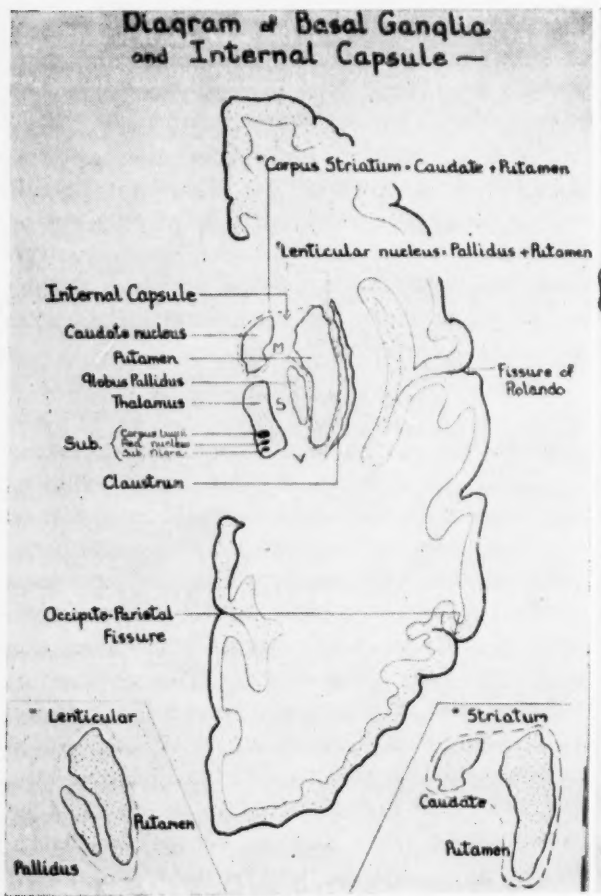

FIG. I

Figure I. This diagram indicates the group of basal ganglia and the main hypothalamic areas of gray matter below it. In the *left* corner are the lenticular nuclei consisting of the globus pallidus and putamen. In the *right* corner is the striatum consisting of the caudate and putamen.

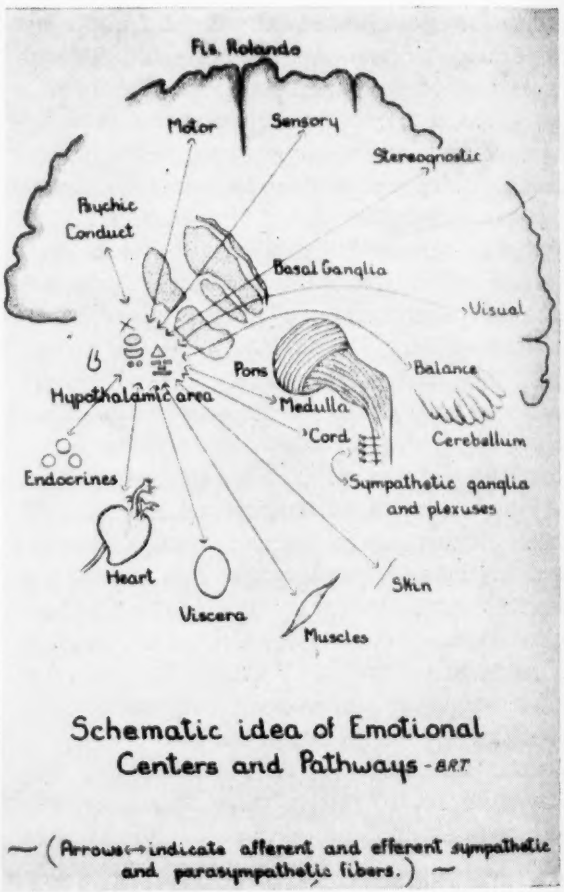

FIG. II.

Figure II. This diagram indicates the hypothalamic areas with the sympathetic and parasympathetic connections to various areas of the cortex, the medulla, the cord, the endocrines, the heart, the viscera, the muscles, and the skin. The arrows are made two-way to indicate the afferent and efferent impulse flows.

While one may not entirely agree with this classification, it serves the purpose of an attempt at classification. Emotions are undoubtedly frequently associated with instincts and both may reach their goal through the same centers and pathways. Emotions are often the more complex and elaborated. The instinctual urge, for instance, shown by ordinary hunger and thirst is more simple than the hunger and thirst after rightousness with its devotional elevation and its incurred sacrifice. The young seeking the protection of the parent may be considered an instinct, but when matters are reversed and the parent becomes old and helpless it is, or should be, the compensation emotion of the offspring to protect the parent. It may be, however, that all emotions in origin are instincts or the by-products of instinctual urges.

Many emotional manifestations are superficial and take on a reflex color as crying and laughing, outbursts of anger and of delight of short duration, while, on the other hand, many are deeply seated like resentment, sorrow, joyousness, and devotional elevation. It should be remembered, however, that superficial emotions, when suppressed, may become deep emotions. In consequence, suppressed weeping, anger, or delight may change to depression, resentment, or discontent. Hence the ordinary expression of emotion is non-pathologic, if not suppressed or carried to excess and in fact is as a rule beneficial, while if too much inhibited or stimulated it may become emotion-pathologic, or, if too long continued, psychopathologic, or physiopathologic, or both. Excessive or uncontrolled superficial emotions may have a vicious progress, as laughter and weeping becoming hysterical and hysteria becoming physically exhaustive; or anger may mount to rage, then to mania; or delight may rise to motor exhiliration and psychic exaltation.

Emotional manifestations, deep or superficial, are at times affected like reflexes by excitatory (pressor) and inhibitory (depressor) impulses traveling along appropriate fibers which cause conditioning, reinforcement, or control. Some of these factors are voluntary, some involuntary. Habit plays its part, pathways are easily conditioned to the same stimulus. Reason may be used voluntarily, chiefly through its anterior lobe cortex connections, to control, direct or mentor both emotional feeling-tones and emotional expression. We must remember that emotions are millions of years old and hark back to our remotest animalistic ancestors, while reasoning power developed only with the dawn of civilization and is, at present, unfortunately, only just beginning to shed its diapers.

Emotion may be expressed specifically by vomiting as a consequence of a disgusting sight, or urinating from fright, or it may be expressed generally as in a sense of elated well-being from a fine day, or in psychic, motor, and sensory obtundation from horror.

In investigating emotions the physician has to be somewhat of a prestidigitator in order to be able to identify himself with the emotional feeling-tones of the patient and at the same time to abstract himself sufficiently to be a judge of these emotional flows, their origins, and the situations with which they are connected; yet this is what the physician must have the ability to do or he will find himself, or others will find him, a babe in the woods of misunderstanding.

The physician must be able to differentiate between an organically diseased system or organ and an emotionally upset system or organ, remembering always that an organic condition may induce emotional disturbance and, vice versa, an emotional condition, if severe enough and long enough sustained, may invite the inauguration of organic disease. Thus a patient may have a gastric ulcer, the pathology and discomforts of which may initiate a serious emotional disturbance. Again, a patient may have an emotional illness which may increase or alter the gastric secretions enough to become the basis of an ulcer. And emotional disturbance does appear to alter the gastric secretion in causing either hyper- or hypo-acidity. We have found achylia gastrica or marked subacidity in about fifty per cent of our depressed cases and in many of these the gastric juice became normal when the depression cleared. On the other hand, many patients with long standing absence of free hydrochloric acid in their gastric contents tend to become depressed or otherwise emotionally disturbed. Also, such special examinations as electrocardiographic tracings and basal metabolic estimations are affected by emotionality, and it is known that coronary thrombosis is at times emotional in origin, and that thyroid glands have

been extirpated, rightly or wrongly, in patients whose hyperthyroidism was of emotional causation. These illustrations could be cited *ad infinitum* in relation to various organs or even other body structures.

Cause of emotional illness

We should not accept *in toto,* nor should we totally reject, many of the various theories of the genesis of emotional illness. Most of these cases have been generally classified under the broad head of psychoneurosis, although many have not what has been accepted as psychosis or neurosis and certainly not both. The diagnosis of psychoneurosis should be discarded; it recalls the old terms of hystero-epilepsy and typho-malaria. Rather a diagnosis should be, in these cases, either neurosis or psychosis or emotional illness. The infantile psycho-sexual genesis of Freud does not apply to many cases of emotional illness. It can not be said at the present time that those three distressing mental states—manic depressive psychosis, dementia praecox, and paranoia—are basically emotional illnesses, but it is a safe conjecture that they may be complicated with certain manifestations which travel through the hypothalamus and its pathways.

It is impossible, at present, to definitely and fully classify emotional illnesses, but we can say that some of them have their origin in misdirected or perverted instincts, some in racial characteristics suppressed or gone haywire, some in bad heredity, some in the vicissitudes of situations, some in organic disease of the brain, cord, or body, while some are due to innate or acquired hypersensitivity of the emotional system, others possibly to hyposensitivity and others to endocrine or biochemical or toxic disturbance and others to overpowering autogenous or exogenous suggestion.

Illustrative cases

A brief citation of cases of emotional illness is probably in order.

There came under our observation two years ago a young married woman who had received insulin shock treatment elsewhere without effect. She had been a brilliant student and had taken abnormal psychology which she applied to herself. She had been attractive and had received considerable attention at public entertainments, but was sensitive because she thought she was not invited to many private entertainments and felt that this was because her father had started life in a menial position, although he had made quite a success and had retired well off. She had been happily married for seven years, but had not been pregnant because she thought her child would be socially shunned and also because she had been told by her sister, who had an only child, which child would eventually inherit the grandfather's estate, that she should not have a child, since, when she was ten years old, she had had an attack of nephritis. The patient soon began to have insomnia, nausea, cardiac distress, became tense, quite panicky, worried about her eyes, feared diseases, was afraid to be alone in her apartment, and got heart conscious, jealous, and more sensitive. Investigation revealed that she was neurologically and generally healthy, that her father was a fine man and had come of professional stock, his father having been a physician. After obtaining the cooperation of her sister, she was told that there was no reason why she should not have a child, she was assured that she had been cured of her kidney trouble for years, she was reassured as to her right to social recognition, and shown that most of the snubbing she had received was due to her own hypersensitiveness, rather than to her background. She was taught how to control and direct her emotions with her reason and that her physical discomforts were only transferences of her social and other disappointments. She made an excellent recovery, having a child within a year, and making normal social contacts.

Another case was a young truck driver of twenty-six years, single, and of good health except for infected tonsils. He had been too tenderly raised for his job. On long drives at night he became nervous and apprehensive. One night, after drinking several bottles of beer, he parked the truck and went to sleep in the seat. Nothing happened and he could remember no dream but he awoke frightened, panicky, sweating, and afraid to drive. He was taken to a doctor and two hypodermics were administered. He was taken home and after four months of these symptoms and others he came under our observation. His additional symptoms were insomnia, spells of rapid respiration, fear of over-eating in spite of gastric hyperacidity, discomfort of the eyes, tremors, restlessness, fatigue, paresthesias, choking sensations, fear of serious illness, and indecision. His neurological examination was negative. With psychotherapy, sub-shock doses of insulin, and regulation of rest and exercise he gradually recovered within several months.

Another case was a young woman of twenty-eight years, who seven years previously, after a labor of seventy-two hours and the administration of narcotics including the inhalation of much chloroform, gave birth to twins who died in a few days. She was of course quite ill, but in a week she became suddenly worse with rigors, sweats, disturbed vision, and severe apprehen-

sion. She continued to have these spells at frequent intervals, and in addition fears of various illnesses, fatigability, anxiety, lack of ability to concentrate, diplopia, blurred vision, tinnitus, sense of swaying, concern, irritability, fears of crowds and of being alone, of dirt, germs and noises. In spite of these she was anxious for another child and had a normal baby four years ago. Her neurological examination showed difficulty with convergence, right facial weakness, slight propulsion to the left in walking, moderately exaggerated deep reflexes, an elevation in the first part of the colloidal gold curve in her spinal fluid and slight increase in globulin, but negative pressure, cell count, and Wassermann. The diagnosis was made of chronic slight encephalitis originating in cerebral anoxemia at the time of the birth of the twins, and of emotional instability. It was thought that her hypothalamic region was involved. She is still under observation and is improving with the daily administration of oxygen by inhalation, sodium iodide intravenously, iron, and psychic explanation and encouragement.

Another case was that of a previously normal and happy young married woman of twenty-eight who had one child. On one occasion her husband and another man took a few drinks and went on an automobile ride with two women of rather questionable character. Nothing more had happened and a make-up scene was enacted when he told his wife about the incident, but the wife could not wipe the episode off the slate. When she was alone she would cry and then she began to weep constantly and to get up various ideas of reference to her viscera. When she came under observation she had been weeping for three weeks. She had nervous rigors, fatigue, paresthesias, bradycardia, flushings, vertigo, a sense of stoppage of food in her throat, anxiety and periods of frantic hysteria. She feared tuberculosis, cancer, loss of mind, and brain tumor. Her general and neurological examinations were negative except for increased deep reflexes. The usual explanations and sedatives had no effect. She was given a few doses of insulin, but this was discontinued before she reached coma periods because of her intense fear of the treatments. She was then told that she was a healthy woman physically and mentally, but that she had an emotional illness and that she must use her reason to control her emotional overflow, that she was really being unfair to her husband in overstressing the incident, and that if she kept up her emotional indulgence she would make herself a wreck, ruin her husband's career, and injure the development of her child. She was informed that through vanity and self-pity she was regressing to childhood immaturity, but that she could regain her real status if she would ignore the incident which had upset her and get herself in hand. Under psychotherapeutic guidance she did this, made a fine recovery, and is now an adequate, contented individual.

Cases like the above are exceedingly frequent and have been variously classified. I feel that these cases, as well as the emotional expressions seen in the Parkinsonian syndromes and in those whose emotionality follows hemorrhage into the internal capsule, have involvement of the hypothalamus and its pathways.

Treatment

In handling cases of emotional illness one must realize that through explanation and suggestion the emotional flow frequently may be inhibited and the manifestations regulated by the development of the use of the will, the reasoning power, and the intelligence. Many of these cases have an emotional immaturity which may have no infantile sex trauma genesis. Rational analysis and explanation may be most beneficial. Insulin in sub-shock or shock doses and metrazol are helpful in certain cases, especially if the proper suggestions are made during the period of accessibility. As of old, Faradic electricity or a douche of cold water may occasionally help, but reasonable discipline and regulation during a period of complete physical rest, or partial rest, as instituted by Weir Mitchell, is far better and more lasting. We have found that a thorough investigation of the history for emotion producing factors is necessary, and also the following: separation for a time from the usual environment; gaining the understanding and cooperation of the family and associates; the establishment of free association and rapport with the patient in eliciting the history and in endeavoring to aid in handling the feeling-tone difficulties; careful observation of the emotional expressions, both in their character and intensity; the ability to differentiate between genuine distress and dramatization; detailed and accurate explanation to the patient of the cause and non-organic nature of uncomfortable symptoms; and the establishment of confidence by the patient in the physician so that reassurance and encouragement and cooperation may be more effective. Also it is essential to re-educate and stabilize the emotional system, and to regulate the general mental and physical status with rest, exercise, and diversion. Many patients with emotional illness have contracted the bad habit of seeking alcoholic, narcotic and other

drug indulgence. Queer dieting, the taking of various barbital and bromide derivatives and excessive purgation is the rule rather than the exception. These measures are harmful in themselves and patients can not regain a normal state while they are continued. Tepid or cold packs, massage, and artificial or actual sunlight in moderation, or, as far as drugs are concerned, chloretone, belladonna, or atropine when indicated, or insulin in moderate doses, or placebos are preferable to the usual sedatives.

Conclusion

There seems to be needed a re-classification to include emotional illness in those conditions previously described under the terms of functional, borderline mental, or psychoneurotic states, and their subdivisions. It also appears that some organic basal ganglia and hypothalamic lesions exhibit manifestations that should come under the classification of emotional illness. It is believed that the hypothalamic nuclei with their sympathetic and parasympathetic connections constitute the centers and pathways of the emotions and that these nuclei and pathways could be justifiably termed the emotional nervous system. Finally, the treatment of emotional illness is individual and embraces many methods of therapy used in the treatment of other conditions, but avoids the continued employment of barbital and bromide sedatives.

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Tic Douloureux as a Result of Compression of the Nerve Root

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Severe trigeminal neuralgia is not an unusual condition, as this entity has been known for approximately one thousand years. Various attempts have been made to control the pain and during the course of time the most accepted method of treatment has been either alcohol injection, which of course is temporary, or transtemporal division of the posterior sensory root behind the Gasserian ganglion. The etiology of this distressing symptom complex is unknown and the production of this severe neuralgia in the distribution of the trigeminal nerve as a result of compression is more or less rare. Dandy[1], in advocating the posterior approach rather than the classic transtemporal route, argues that on rare occasions there is compression of the posterior root of the trigeminal nerve before it enters the pons, which may be a mechanical factor causing these painful paroxysms. In a separate paper[2], one such case is being reported as a result of an acoustic neuroma with rather bizarre symptoms.

Woolsey and Elsberg[3], described a case of trigeminal pain occuring in a patient with neurofibroma of the nervus acusticus in 1904. In 1910, Weisenburg[4], reported a case of "Cerebello-Pontine Tumor Diagnosed as Tic Douloureux for Six Years" in which various attempts at cutting the Gasserian ganglion

and sensory roots afforded respite from pain for only a day or two. Near the termination of this man's illness, the radiation of pain extended into the distribution of the glossopharyngeal nerve and at necropsy a large tumor of the nervus acusticus was found which Weissenburg stated was a sarcoma.

Hunt[5] presented a woman before the Neurological Institute Conference in 1915, who complained of trigeminal pain, and a tumor of the nervus acusticus was demonstrated.

Cushing's[6] book, *Tumors of the Nervus Acusticus,* published in 1917, revealed that in thirty cases there was a complaint of facial pain in four patients and in only one instance did the distress assume the proportion of a major trigeminal neuralgia.

In 1928, Parker[7] reviewed fifty-three cases of acustic nerve tumors at the Mayo Clinic and stated that the pain occurred in four patients, but, like Cushing's report, the suffering was intense in a solitary patient only.

Dandy[8] stated, in 1929, that one patient suffered from typical tic douloureux in which he removed a neurofibroma of the acoustic nerve.

More recently, Hamby[9] in 1935, reported one case of trigeminal pain with an acoustic tumor and Parker[10], in 1937, described two cases. Dandy[8] states that out of two hundred approaches by the cerebellar route there was a compression of the posterior route of the trigeminal nerve in five or six instances. The following cases are reported because of their rarity and to stress the point that, in spite of satisfactory alcoholic injection with complete anesthesia in the distribution of the affected branches, the patient still suffered from paroxysms of pain which led the author to believe that the seat of the pathologic process was more posterior than immediately behind the Gasserian ganglion.

Anatomical Considerations

Because of the proximity of the trigeminal, acoustic and facial nerves, with a crossing of the petrosal vein, it is easy to see where compression of the posterior root of the trigeminal nerve which is bearing sensory impressions to the pons may occur.

The upward and anterior enlargement of

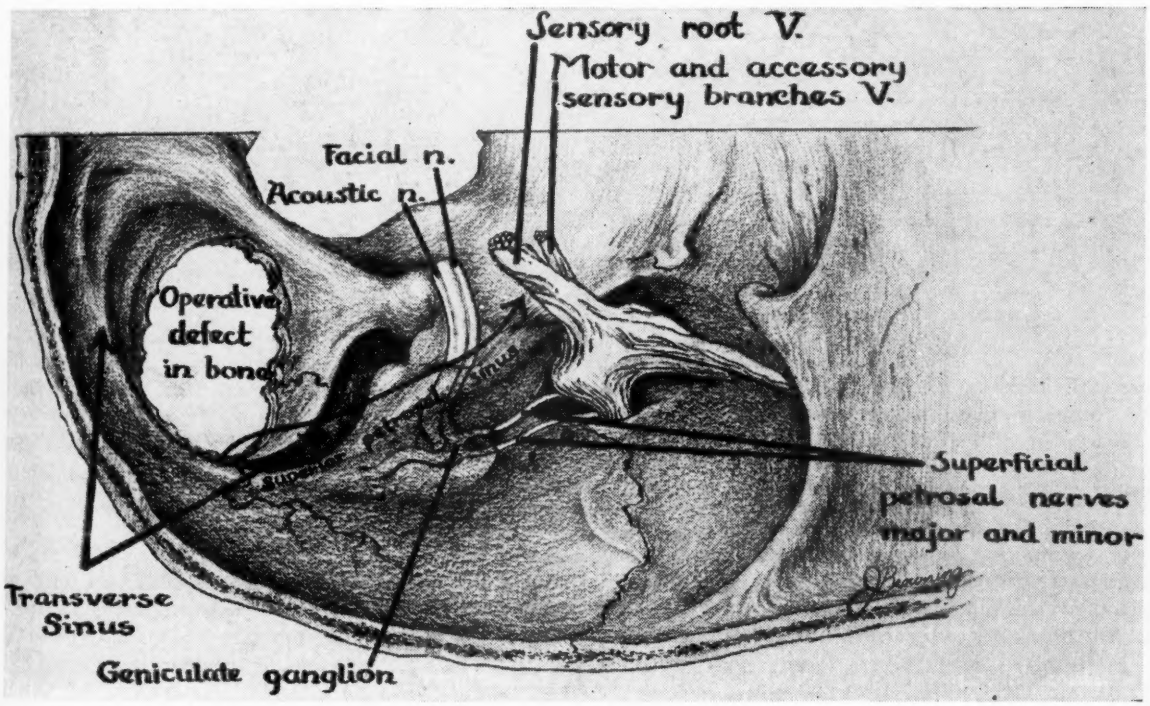

FIG. I.

Fig. I. Drawing showing relationship to the trigeminal, facial and acoustic nerves to the superior-petrosal sinus. (Modified from Dandy, W. E.: *The Brain Practice of Surgery,* W. F. Prior Company, Hagerstown, Md., 1932, Fig. 74, p. 191).

a neuroma of the acoustic nerve will cause a distortion of the posterior root and will also cause a compression, either by a congenital loop of the vessel; or, as in case 2, a winding of the vein around the nerve root, will cause an actual strangulation as shown in Fig. II.

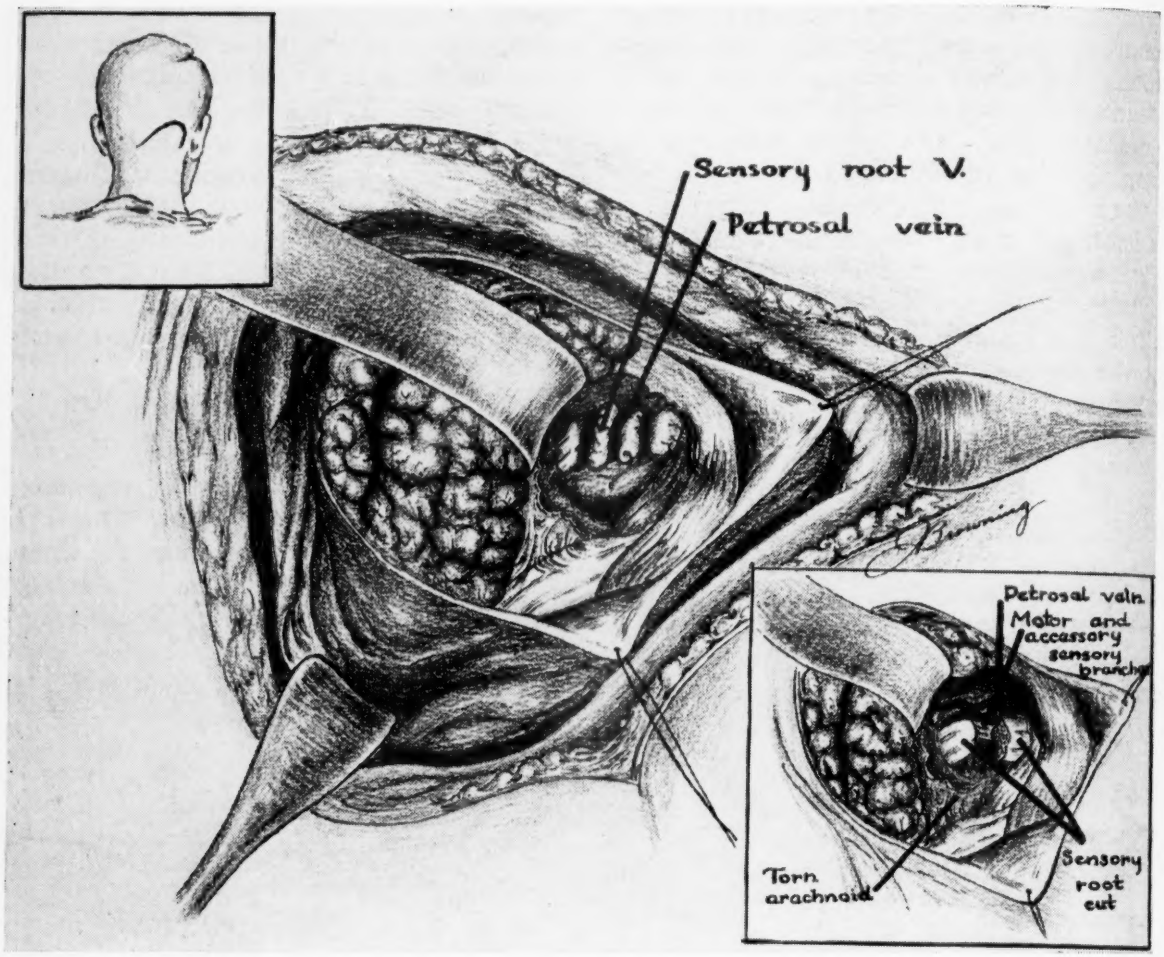

FIG. II

Fig. II. Illustration revealing operative approach and tortuous compression of trigeminal nerve before and after it was divided. (Modified from Dandy, W. E.: *The Brain Practice of Surgery*, W. F. Prior Company, Hagerstown, Md., 1932, Fig. 73, p. 190).

Case Reports

Case 1. This was a female, housewife, age 43. She complained of paroxysmal pain in the distribution of the first and second branches of the right trigeminal nerve. These were initiated by washing the face, talking, eating or brushing the teeth. Physical examination, including laboratory tests of the blood and urine and Wassermann test of the blood, were negative. She submitted to an alcohol injection of the first and second branches of the right trigeminal nerve on September 26, 1936, and there was complete anesthesia following this procedure. However, within two or three days, the pain recurred with unusual severity and because of the persistent anesthesia, with pain as severe as prior to the injection, a cerebellar approach to the posterior root was carried out, as it was thought that there might be some compression of this nerve.

Under avertin anesthesia, on September 30, 1936, the nerve was exposed and it was found to be compressed by a loop of the petrosal vein and when this was retracted and a subtotal section of the root was carried out, the patient made a satisfactory recovery and has remained free from pain since that date.

Case 2. This was a female, housewife, age 49. She complained of severe paroxysms of pain in the distribution of the third branch of the right trigeminal nerve. These pains were provoked by eating, talking and washing the face and had persisted over a period of eleven years, for which she had undergone two alcoholic injections with partial relief. On December 2, 1936, alcoholic injection of the third branch of the right trigeminal nerve was carried out and there was an anesthesia in the distribution of the right jaw.

However, within two or three days, the patient returned, complaining more bitterly than ever of the severe pain. Because of the experience of the first case, a cerebellar exploration of the posterior root was carried out with the thought in mind that the patient was suffering from some compression of the posterior sensory root before it entered the pons. On January 13, 1937, under avertin anesthesia, a posterior approach to the right trigeminal nerve was carried out and the petrosal vein was found to be wound around the trigeminal root in the manner illustrated in Fig. II. The nerve was divided and, as shown afterwards, the vessel remained intact. The patient made an uneventful recovery and has remained free from pain since that date.

Case 3. This was again a female, aged 30. She was referred to me on December 22, 1936, because of pain in the right upper lip, nose and forehead of five months duration. This pain was sharp and lancinating in character and was induced by touching the upper lip, talking or eating. General and neurologic examination, including Wassermann test of the blood, was negative except for a persistent trigger zone in the right upper lip. Touching this area produced paroxysms of pain in the first and second branches of the right trigeminal nerve. A diagnosis of trigeminal neuralgia was made and because of the proximity of the holidays, she preferred to attempt inhalations of trichlorethylene temporarily. However, the pain became more intense and, on January 20, 1937, alcohol injection of the first and second branches of the right trigeminal nerve was performed. The patient was free from pain until September 1, 1937, at which time the radiation of pain was the same as previously and the neurological examination was negative. It was noted at this time that both corneal reflexes were present and equal. The alcohol injection was repeated on September 18, 1937 and again complete relief from pain was afforded. However, in November, 1937, she suffered an attack of acute Meniere's syndrome and was seen by one of my colleagues. On September 8, 1938, the facial pain recurred, although there was still anesthesia in the distribution of the first and second branches of the right trigeminal nerve. It was noted at this time that there was a slight diminution of the right corneal reflex, but on rough test with a watch, the hearing was equal on both sides. In view of subsequent findings, it is regrettable that an audiogram was not obtained, but with the history of an acute Meniere's syndrome and persistent anesthesia in the affected branches, exploration of the posterior fossa was advised with the possibility of an acoustic neuroma in mind.

On September 12, 1938, under avertin anesthesia, unilateral cerebellar approach was made and on elevating the cerebellum, the fifth, seventh and eighth nerves were found to be stretched over a tumor mass which was yellow in color and approximately the size of a large hazel nut. This was removed piecemeal and the nerves were left intact with the exception of remnants of the acoustic nerve. Microscopic examination revealed an acoustic neurofibroma. Recovery was uneventful except for a partial peripheral facial palsy and spinofacial anastamosis was suggested, but the patient refused further surgery. She has remained free from pain and there has been a gradual return of function of the facial nerve to the extent that the patient can now close her eyelids. The naso-labial fold is present, but there is a drawing of the angle of the mouth on smiling and she is unable to whistle. There is a residual deafness of approximately twenty per cent. When seen on January 9, 1940, there was no complaint and the patient stated that she felt so well she was not disturbed by the weakness of the facial muscles and examination revealed complete return of sensation over the entire right side of the face.

Summary

These three patients are presented because they differ somewhat from the classic tic douloureux which consists of paroxysms of pain involving one or more of the three branches of the trigeminal nerve. This pain occurs in a sharp, lancinating manner, usually initiated by talking, eating, washing the face, brushing the teeth or shaving. There is, in most instances, a trigger zone, the touching of which will produce pain. Because of the persistence of pain after temporary alcoholic injection it was felt that there might be some compression near the pons and surgical exploration, by the cerebellar route, in this type of case has shown that there is a definite organic reason for the causation of this pain. This does not mean that the classic transtemporal approach should be eliminated. It carries less risk and the other operation should only be performed after due consideration of the symptoms and by one who is thoroughly trained.

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Early Diagnosis of Tumors of the Spinal Cord

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1902 - 1940

Dr. Trimble graduated in medicine from the University of Rochester Medical School, New York, in 1932. He interned at the Union Memorial Hospital, Baltimore, Maryland, following which he served in various capacities in the Neurosurgical Department of the Strong Memorial Hospital at Rochester, New York, from 1933 to 1937. He then went to the Hospital Latino American, Puebla, Mexico, where he acted as Associate Surgeon and Consulting Neurosurgeon to the University of Puebla and to the American Hospital in Mexico City. He remained there until July 1, 1938, when he moved to Corpus Christi, Texas. In Corpus Christi he established himself as one of the most promising neurosurgeons in the Southwest. He met with a most untimely death in an automobile accident on May 5, 1940. At the time of his death he was Chief of the Neurosurgical Staffs of the Spohn and Fred Roberts Memorial Hospitals in Corpus Christi.

Tumors of the spinal cord must be diagnosed at a far earlier stage by the general practitioner than they are at the present time if the patient is to derive any benefit from operation. In all other fields of surgery, vast strides have been made in early recognition of tumors. Masses in the breast are now being seen at such an early stage that differential diagnosis is at times difficult. In the field of Gynecology, biopsy of suspicious areas of the cervix and curettings from the uterus for unexplained bleeding is steadily reducing the tragic end-results formerly so common. Cystoscopic examination of the bladder is rapidly causing tumors of this area to be amenable to treatment. In the field of General Surgery the same condition holds true; namely, that the general practitioner is becoming tumor-conscious. However, in the field of Neurosurgery one becomes aware of the deplorable need of early diagnosis. In the majority of cases the average practitioner has no difficulty in making a diagnosis of a full-blown tumor of the spinal cord. This latent diagnosis, however, neither reflects credit upon him, nor does it in any way aid the prognosis of the patient. There is absolutely no reason to feel that one's hands are tied in making a diagnosis of the underlying pathology simply because the spinal cord is locked up in a bony compartment.

The diagnosis and differential diagnosis are not difficult if one follows a definite system of procedure. The history in itself is of immense importance. The ten symptoms most commonly met with are as follows: (1) Unaccountable pains in the back and girdle regions; (2) Referred pain in the extremities; (3) Sensation of prickling or numbness in the extremities; (4) Falling or tripping for unaccountable reasons; (5) Relief gained in sitting upright in a chair, or walking, rather than lying in bed on one's back; (6) Changes in bowel and urinary habits; (7) Atrophy of the extremities; (8) Weakness of the extremities, leading to paralysis; (9) Pain intensified on sneezing or coughing; and (10) Loss of sexual powers.

A careful neurological examination may reveal one or all of the following points; namely: (1) An abnormal type of gait; (2) Weakness of the extremities; (3) Atrophy of the muscle groups; (4) Limitation of motion; (5) Slight scoliosis; (6) Fibrillary tremors; (7) Pain on pressure over the spinous processes; (8) Area of anesthesia to pin prick, cotton wool, or heat and cold; (9) Reflex changes; and (10) A positive Babinski and clonus.

A simple lumbar puncture will serve to reveal whether or not the following points or findings are present, such as: (1) A low spinal fluid pressure; (2) A negative response to jugular compression; (3) A dry tap; (4) A xanthochromic tint; (5) An increase in the total proteins; (6) A positive Pandy test, a grayish tinge resulting when a drop or two of carbolic acid is added to the spinal fluid;

and (7) The Wassermann reaction.

Up to this point, the examination has not entailed any great expense on the part of either the patient or the doctor, and yet only one more procedure will make the diagnosis a certainty. As a matter of fact, the last step, that of x-raying the patient, should best be done by the doctor to whom the case is referred; namely, the neurosurgeon. From a stereoscopic film focused over the area in question, one can often times see a decrease in bone density, and every so often an outline of the tumor itself. As a means of locating exactly the tumor mass, the injection of lipiodal into the subarachnoid space is invaluable.

The differential diagnosis lies between: (1) Lues; (2) Pernicious Anaemia; (3) Pelvic Inflammatory Disease; and (4) Arthritis and Sacro Iliac Disease.

This discussion would not be complete without a word about two conditions not already mentioned; namely, Tumors of the Cauda Equina and Protruded Intervertebral Discs. One must remember that in the area of the cauda equina the pressure lies on the nerve roots and not on the cord itself, hence the following findings are usually present, such as: (1) Early pain, especially in the legs; (2) Saddle type of anesthesia; (3) Marked disturbance in the sphincter control; (4) Loss of reflexes; and (5) Flaccid paralysis.

Regarding Protruded Intervertebral Discs, the history is usually quite typical, the patient volunteering the information of a sudden pain on exertion such as diving or weight lifting, etc.; inability to sleep on back at night and the necessity of sitting up or walking to get relief; sciatic pain; weakness of the legs; and anesthesia of the legs. On physical examination, 82 per cent of patients in the dorsal decubitus position exhibit pain on raising the leg in extension; 63 per cent have sciatic tenderness; and 57 per cent show diminished Achilles jerk. Other less common findings are sensory disturbance along the lateral surface of the leg, muscular atrophy, and fibrillary twitchings. Fluoroscopic examination, following lipiodol injection into the subarachnoid space, reveals the typical hour glass deformity*.

Conclusion

The early diagnosis of cord tumors before permanent damage has been done is at once so clear cut and simple that it behooves the general practitioner to become as Tumor-Conscious in this field of surgery as he has in other branches, if he wishes the neurosurgeon to return his patient to him cured and an asset to the community.

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* Love and Walsh: *J. A. M. A.*, July 30, 1938.

REGIMENTED RHETORIC — *(Continued from page 163)*

ing. That some medical literature is like a Chinese guitar—it makes a lot of noise but produces no music—may be a dour commentary on the subject, but aptly points to an all too common frailty.

It is hoped that contributors to this modest little journal, *Diseases of the Nervous System,* will keep in mind that the hall-mark of good writing is a clear, forthright style and that the English language contains enough simple terms to convey the most complex ideas to the reader. In the writing of a medical article for this journal there is no need for pontificating. If there is strict adherence to the principle that this journal shall record new facts and ideas in neurology and psychiatry in a simple, practical manner, then *Diseases of the Nervous System,* although it joins a "smothering avalanche" of medical publications, will not find a quick repose in the office waste-basket.

Louis J. Karnosh, M.D.,

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Surgery Among Individuals With Mental Disease

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INDIVIDUALS who have mental disease and are confined to an institution should have the full benefit of any possible surgical treatment. It is our policy in considering surgical operation on individuals, not to be unduly influenced by their state of insanity. The patient is considered primarily from the viewpoints of the surgical condition present, the necessity of surgical intervention, the comfort that can be given the patient and whether his ability to care for himself, perhaps even to the extent of his returning home, can be increased. The patient's mental status never is allowed to influence the decision against surgical measures of an emergency nature and elective operations have been recommended when they have been considered of benefit to the patient.

The surgical care of patients at the Rochester State Hospital is carried out on separate services by several surgeons, but for the most part results and observations of the different surgeons have been similar. For this reason we thought it of interest to summarize the results of treatment and other observations made in a group of patients who were treated surgically by one of us in the course of a year.

Material

After elimination of a few cases in which minor surgical procedures were successfully performed, the group studied actually consisted of seventy consecutively treated patients on whom seventy-seven operations were carried out. Most of the excess of operations over patients was represented by similar operations on the same patient, such as two stages of a colonic operation. One patient, however, underwent dissimilar operations a year apart; namely, herniotomy and thyroidectomy. Therefore, although table I accounts for the correct number of patients, seventy, table II, which is made up from the standpoint of operations performed, seems to account for seventy-one patients. The footnote to table II explains this.

Twenty-two of the patients were males; and forty-eight, females. The average age for the entire group of seventy patients was 51.2 years. The oldest patient was seventy-one; the youngest, nineteen years of age. The majority, forty-two, of the patients were more than fifty years of age. Twenty-three of the patients were between the ages of fifty and sixty years and twenty were between sixty and eighty years of age. Only twenty-eight patients were less than fifty years of age, fifteen of whom were between forty and fifty.

As has been said, surgical intervention was considered in any case, regardless of the type of psychosis present. In table I are recorded the psychoses present in the seventy cases.

TABLE 1

Psychoses Present

Condition	Patients
Dementia praecox	20
Manic depressive psychosis	15
Phychosis with cerebral arteriosclerosis	11
Involutional psychosis	6
Paranoid condition	5
Psychosis with syphilitic meningo-encephalitis	4
Psychosis with mental deficiency	3
Other types of psychosis*	6
Total	70

* This classification includes psychosis with hyperthyroidism, with epidemic encephalitis, senile and undifferentiated psychosis, psychopathic personality and psychoneurosis.

Operations Performed

The operations performed, with but three exceptions, were considered major surgical procedures. They have been grouped anatomically and are summarized in table II.

TABLE 2

Operations Performed

Condition	*Patients*	*Operations*	*Deaths*
Gynecologic lesions (Uterine leiomyoma, carcinoma, prolapse, pelvic inflammatory disease, and so forth)	16	17	0
Hernia* (Inguinal, umbilical, postoperative, strangulated, and so forth)	15	16	1
Lesions of stomach, duodenum, pancreas and biliary system (Cholecystitis with stones, peptic ulcer, carcinoma, hypoglycemia, and so forth)	12	13	4
Lesions of head and neck (Thyroidectomy and dissection of lymph nodes of neck)	14	15	0
Appendicitis	2	2	0
Lesions of intestine (Acute intestinal obstruction, removal of foreign bodies, carcinoma of colon)	3	5	1
Miscellaneous (Carcinoma of breast, exploratory laparotomy, and so forth)	9	9	0
Total	71	77	6

* One patient in this group is also accounted for under lesions of the head and neck, as is explained in the text.

Mortality

The deaths can best be explained by a brief review of the cases in which death occurred.

Case 1—A man, aged sixty-two years, whose mental condition was senile psychosis, had had repeated attacks of biliary colic with jaundice. Under intra-tracheal gas-ether anesthesia, cholecystectomy and choledochostomy were performed. Bilateral bronchopneumonia with multiple abscesses developed and the patient died on the sixth postoperative day.

Case 2—A man, aged sixty-eight years, whose psychosis accompanied cerebral arteriosclerosis, had had a duodenal ulcer for a number of years. He had had adequate medical treatment, but symptoms of subacute perforation and pyloric obstruction developed. The patient presented a poor operative risk because of the presence of obesity, bronchial asthma and symptoms of coronary disease. Under intratracheal nitrous oxide and ether anesthesia posterior gastro-enterostomy was performed for a subacute, perforating duodenal ulcer with pyloric obstruction. The ulcer had perforated onto the pancreas and a large inflammatory mass had formed. Immediately following surgical operation, the patient was placed in an oxygen tent as a prophylactic measure, but the asthma became uncontrollable and bilateral bronchopneumonia developed. Death occurred on the seventh postoperative day.

Case 3—A man, aged fifty-two years, whose psychiatric condition consisted of psychosis with cerebral arteriosclerosis, had an umbilical hernia which became incarcerated. He had rather marked pernicious anemia and was considered to constitute a poor operative risk but, because of the incarceration, surgical intervention was imperative. Under spinal anesthesia the hernia was repaired by the W. J. Mayo method. There were many adhesions in the upper part of the abdomen, therefore, exploring was not done. The man convalesced without event until his fifth day, when an acute respiratory infection developed and he subsequently died from pneumonia and hepatic insufficiency. At necropsy, evidence of definite cirrhosis of the liver and bilateral bronchopneumonia were found.

Case 4—A woman, aged sixty-five years, who was troubled by psychosis with cerebral arteriosclerosis, also had diabetes mellitus, grade 4, and hypertensive heart disease. She had an incarcerated postoperative ventral hernia and, in addition, she had had repeated attacks of biliary colic. Under spinal anesthesia, cholecystectomy, choledochostomy, choledocholithotomy and repair of the ventral hernia were accomplished. The woman tolerated the operation well, but on the third postoperative day, coronary occlusion developed. She was placed in an oxygen tent, but died on the eighth postoperative day from cardiac decompensation with superimposed pneumonia.

Case 5—A woman, aged fifty-two years, had dementia praecox. Partial intestinal obstruction resulted from a perforated carcinoma of the rectosigmoid. This condition was relieved by preliminary loop colostomy. After three weeks' convalescence, radical posterior resection was performed with the patient under

spinal anesthesia. The patient subsequently died of peritonitis.

Case 6—A woman, aged thirty-seven years, with dementia praecox, had had repeated attacks of rather typical hypoglycemic coma with convulsions. With each of these the value for blood sugar dropped to 30 or 40 mg. per 100 c.c. These symptoms were promptly relieved by administration of concentrated solution of glucose. There was no evidence of disease of the pituitary or suprarenal glands. Under nitrous oxide and ether anesthesia an exploratory operation for an adenoma of the pancreas was performed. The pancreas appeared normal. It was transligated at the junction of the proximal and middle thirds. The woman tolerated the operation well but died rather suddenly on the third postoperative day. The death was attributed to acute suprarenal insufficiency and, at necropsy, the greater portion of both suprarenal glands was found to be absent.

No one factor seemed to be present in this small group of deaths. In no instance did the mental disease seem to be a contributing factor. Four deaths occurred in the group of patients in which operation was performed for lesions of the duodenum, biliary tract, or pancreas. In three of the cases spinal anesthesia was employed and in three anesthesia was produced by nitrous oxide and ether. The deaths, for the most part, occurred among those patients who presented poor operative risks. We expected some deaths, but since surgical measures were imperative the risk was considered justifiable.

Complications

Relatively few complications developed in the sixty-four cases in which recovery took place. Slight respiratory difficulty developed in a few, but in no instance was convalescence prolonged beyond the average period.

Case 7—One patient, a man aged fifty-two years, with psychosis and cerebral arteriosclerosis, underwent posterior gastro-enterostomy for a penetrating, hemorrhagic duodenal ulcer. He was obese and had sustained two previous cerebrovascular accidents. A few hours after the operation the patient was found walking around. Three days later evisceration occurred and it was necessary to resuture the wound. The man recovered without other untoward event.

Although many of the patients got out of bed without permission and were abusive in their treatment of the wound, this was the only case in which evisceration occurred. Up to the present time, ventral hernia has developed in only one case. This patient had undergone prolonged drainage for a ruptured appendix with generalized peritonitis.

Results

In no instance was the mental condition aggravated by the surgical operation. During the immediate convalescence most of the patients were less difficult to handle than they had been before operation. Even the most excited and uncooperative patients sensed that an effort was being made to help them and often they became cooperative. For the most part, no more, and we believe less, sedation was required than is used in the postoperative care of patients without mental diseases. In certain instances it was necessary to keep the patient in restraint, but when this was done, only the upper half of the body was restrained and then in such a manner that it was possible for the patient to move the arms and trunk. The restraints were removed at frequent intervals and the patients were turned. Rarely was the patient placed in restraint until the third postoperative day, because we felt freedom of motion to be essential to prevention of pulmonary complications. The mental condition of sixty of the patients remained unchanged and that of ten patients definitely improved. Eleven of the patients became sufficiently well following operation to return to their own homes.

Case 8—A woman, aged forty-nine years, with a paranoid condition, had had considerable postmenopausal bleeding from diffuse endometrial polyposis. The concentration of her hemoglobin was less than 50 per cent and before her admission she had been treated for pernicious anemia. Following total abdominal hysterectomy, with bilateral salpingo-oophorectomy, her general condition rapidly improved. The blood picture returned to normal without other treatment. Since then she has been able to remain at home and to carry on her own housework.

Case 9—A woman, aged sixty-six years, with

manic depressive psychosis, had been subjected to cholecystostomy elsewhere. She had continued to have repeated attacks of biliary colic associated with jaundice. These came at such frequent intervals that, together with senility and marked depression, it was impossible for her to be cared for at home. Under intratracheal nitrous oxide and ether anesthesia, cholecystectomy, choledochostomy and choledocholithotomy, in the course of which six stones were removed from the common bile duct, were performed. The patient improved so much physically, and slightly mentally, that it is now possible for her to be cared for at home.

In the majority of instances, as has been said, the mental condition was not greatly improved, but as in the cases just reported, the physical condition frequently improved to such an extent that the patients, who theretofore had required nursing care, were able to care for themselves and others. Some were employed around the wards and on the hospital farm.

Case 10—A woman, aged sixty-five years, whose condition included psychosis, cerebral arteriosclerosis and diabetes, had a large inflammatory tumor just beneath the angle of the right jaw. This was fixed and extended into both the anterior and posterior triangles of the neck. There were three or four broken down portions, from which there was considerable purulent discharge. The mass had been present for several months and the patient required frequent dressings as well as isolation from the other patients. In a specimen removed for biopsy, evidence of tuberculosis was found. After a period of conservative treatment, multiple chronic sinuses formed. The entire group of involved nodes was then removed surgically. This necessitated removing the submental, right submaxillary and right superficial cervical nodes and performing block dissection for removal of the deep cervical and jugular lymph nodes. The patient recovered satisfactorily from the operation and now requires no special surgical care.

Case 10 was one of five in which there was some degree of tuberculous lymphadenitis. For the most part these cases presented chronically broken down lymph nodes and chronic sinuses. In every case, following dissection and removal of the indicated nodes of the neck, these conditions have been cured and the patients no longer require special nursing care.

Improvement of the physical condition is further illustrated in cases 11 and 12.

Case 11—A woman, aged forty-eight years, with dementia praecox of catatonic type, was confined to bed because of the discomfort that was caused by complete prolapse of the uterus. Following a Mayo type of vaginal hysterectomy she has been able to be up and around in the ward for excited patients and has required much less care than before.

Case 12—A woman, aged sixty-three years, who had a paranoid condition, was admitted with a huge ulcerating carcinoma of the right breast. This had been present for three to four years before her admission. The patient required frequent nursing care because of bleeding, discharge and objectionable odor. We performed radical amputation of the right breast, with removal of the axillary nodes. The extensiveness of the involvement necessitated removal of a circular portion of skin, 12 to 15 cm. in diameter. This area could not be completely closed, but it healed by secondary intention and the patient now requires no special nursing care.

Several patients, especially males, had hernias of various types. These are a potential source of intestinal obstruction, with its resulting complications. Because of the presence of the hernia many of these patients were not allowed to do farm work or active work around the wards. This consideration, together with the facts that the mortality in the treatment of strangulated hernia is usually greater than 10 per cent, whereas the surgical mortality of uncomplicated inguinal hernia is less than 1 per cent, led us to recommend surgical repair of all hernias of patients who did not present too great a risk. Frequently, the surgical intervention can be satisfactorily performed under regional anesthesia. If living fascial suture is desired, or if the patient is not sufficiently cooperative, this type of anesthesia can be supplemented with intravenous administration of pentothal sodium.

Case 13—A man, aged sixty-five years, whose psychiatric condition was dementia praecox, had a large, right scrotal hernia.

This contained several loops of intestine and adherent mesentery. The hernia could not be reduced and caused the patient considerable discomfort. There were frequent attacks of cramping pain, with nausea and vomiting. Under regional anesthesia, right inguinal herniotomy, using a modified Andrews-Bassini method of repair, was performed. The patient made uneventful recovery and has been able to do light work on the farm since then.

When inoperable carcinoma is present, we feel that any palliative procedure which increases comfort or relieves any of the suffering is justified.

Case 14—A woman, aged fifty-seven years, with a paranoid condition, had had repeated attacks of jaundice and severe upper abdominal pain. She had been jaundiced for four weeks and there was a suggistive mass in the upper part of the abdomen. The history was atypical, but several factors suggested carcinoma of the pancreas. After preoperative preparation with vitamin K, blood transfusion, and intravenous administration of glucose, exploration was performed. A carcinoma of the head and body of the pancreas was found. This was producing partial biliary obstruction. The gallbladder was distended with bile to about six times normal size. Cholecystogastrostomy was performed. The mass in the pancreas has continued to grow, but the patient has remained comfortable and without pain or jaundice.

The factor of age is considered by some a contraindication to surgical operation. However, if the minimum of operative manipulation and anesthesia is given, and if postoperative treatment is directed toward prevention of pulmonary complications, the patient of advanced age usually will tolerate surgical measures.

Case 15—A woman, aged seventy-one years, with manic depressive psychosis, had had symptoms of duodenal ulcer for more than thirty years. She had vomited frequently in the past two to three years. During the three to four months before operation, the vomiting had increased to such an extent that little was retained in the stomach. The patient had lost weight and was in poor general condition. Roentgenologic examination of the stomach and duodenum revealed almost complete pyloric obstruction. Under upper abdominal block anesthesia and a small amount of intravenously administered pentothal sodium, posterior gastro-enterostomy was performed. The stomach was dilated to some ten to twelve times the normal size and the pylorus was nearly completely obstructed by a chronic duodenal ulcer. The patient was out of bed in six days and made an uneventful recovery.

Some patients with mental disease are prone to swallow foreign objects. Inasmuch as these patients tend to do this repeatedly, we feel more hesitation than in the case of a sane person about attempting surgical removal of the objects. Frequently, however, symptoms which necessitate immediate intervention may be produced. Ocasionally, by means of purgatives and a bulk-producing type of diet, these objects are passed through the intestinal tract. One patient swallowed forty or fifty straight pins and required no surgical treatment. The progress of a foreign body through the digestive tract should be followed by daily roentgenographic examination. A leukocyte count should be made frequently and, in the presence of elevation of the count, with symptoms, operation should be performed. The following patient was observed for two weeks before any symptoms developed, at which time surgical operation was performed.

Case 16—A woman, aged fifty-one years, with an involutional type of psychosis, told the nurse she had swallowed something. Roentgenographic examination of the abdomen revealed a pair of pointed tissue forceps and a lead pencil in the region of the cecum (fig. 1). The patient was given a bulky type of diet and purgatives in an attempt to have her expel the objects. During the next twelve days the forceps and pencil remained as though glued in the same region. Then cramping abdominal pains, leukocytosis, and low fever developed. It seemed advisable, therefore, to remove the foreign bodies surgically. The morning of the operation the patient swallowed a large hairpin. The forceps and pencil were removed surgically from the cecum and, at the same time, the hairpin was removed from the stomach. The patient made an uneventful recovery.

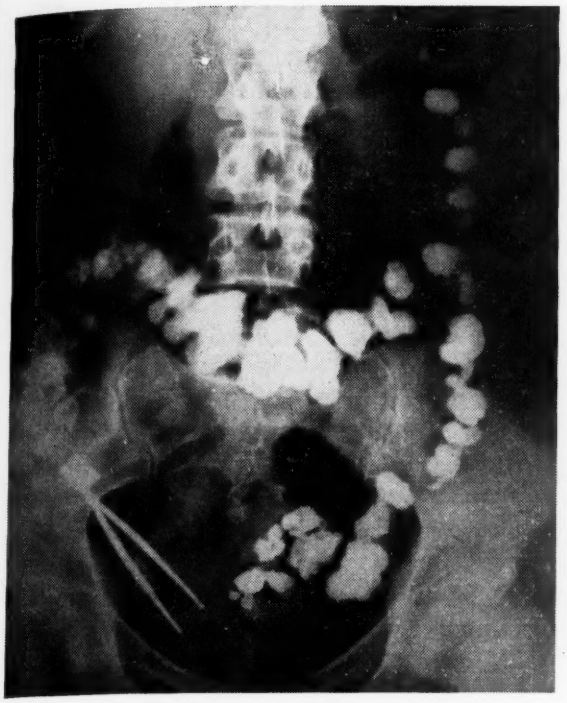

Fig. 1. Foreign bodies in region of cecum which were removed surgically.

Diagnosis

Considerable difficulty may be experienced in making an accurate diagnosis of the presence of some surgical condition in examination of individuals with mental disease. Rarely can an accurate history be obtained and the patients will not cooperate for certain specialized examinations. Frequently they are unable to give any account of their symptoms. Usually, the first indication of an acute illness is detected by observing some abnormality in their behavior. This is often hours after the onset of the illness, as they rarely complain of pain or nausea, nor is their posture or facial expression suggestive of discomfort. The mental disability predominates and tends to mask any physical abnormality which they experience. Often they will eat their meals and conduct themselves in the usual manner a few hours prior to death. The nurses in the wards, who are in constant contact with these patients, most often can detect some alteration in their habits. They may observe a patient's lack of appetite, or perhaps they will find a patient vomiting a rather recently eaten meal. Unusual bleeding, apparent loss of weight and lack of bowel movements may be observed. Visible tumors and hernias frequently are exposed when the patient is bathed, as are other aggravating conditions which should be treated surgically.

The objective as well as the subjective symptoms often are absent or, if present, are misleading. It is difficult to obtain sufficient cooperation and relaxation to allow satisfactory examination of the abdomen, pelvis, and so on. Examination of the abdomen, in the majority of cases, does not disclose the tenderness, rigidity, distention or other symptoms that are expected. The symptoms which are wholly or in part under reflex control frequently are abnormal. It may be necessary to give preliminary sedation or to completely anesthetize the patient before satisfactory examination can be performed.

Once any abnormality in the patient's behavior, suggestive of the presence of a surgical condition has been suspected, every effort should be directed toward making an accurate diagnosis. If this cannot be done, but the condition arouses sufficient suspicion, there should be no hesitancy in resorting to exploration. Frequently, when the findings are sufficient to allow a positive diagnosis to be made, the disease is so far advanced that prognosis is unfavorable.

When to Operate

As we have mentioned, the patient's mental status is not allowed to stand in the way of a surgical procedure of an emergency nature. Frequently, however, elective surgical measures should be postponed until the patient seems to be in a less excited phase of his psychosis. We have found no particular type of psychosis to be a contraindication to surgical operation. The majority of the patients must be considered to constitute poorer than average operative risks. This is in part owing to the confined lives they lead and to the fact that the majority are more than fifty years of age and are relatively inactive. The concentration of hemoglobin and the erythrocyte count are usually lower than normal. We have considered a concentration of hemoglobin of 70 per cent, and an erythrocyte count of between 3,000,000 and 4,000,000 cells to be satisfactory, although not necessarily the desirable average for this group. In many cases these values have been still lower.

When the patients are anemic, somewhat dehydrated, or obviously are in poor condition, preoperative transfusion of blood, intravenous injection of fluids and special diets with vitamin supplements are of value. The majority of patients and relatives will be willing to act as donors of blood.

When thyroidectomy is contemplated, a period of at least ten days' preparation with compound solution of iodine should be instituted. We have felt this advisable chiefly as a prophylactic measure, because it has been impossible to perform satisfactory metabolism tests and it has been more difficult to determine the presence or absence of hyperthyroidism.

The usual immediate preoperative preparation given to any surgical patient is carried out, but the rectum always should be examined before surgical operation. These patients usually are constipated and unless the bowel is emptied by multiple enemas, the operative as well as the postoperative course may be difficult because of the presence of feces impacted in the colon. Many of the patients will have been confined to bed, or restrained, for a period just before surgical operation, but we have felt it advisable to have them up and around for a few days before an elective surgical procedure is performed.

On the day of operation the patient is given a sedative, usually some derivative of barbital. If the patient has been uncooperative and there is any possibility that he has eaten, and especially if an upper abdominal surgical operation is to be performed, lavage of the stomach is carried out before the anesthetic is administered. Supplementary intravenous use of pentothal sodium has allowed us to employ almost any type of anesthesia that we have desired to use. Because these people are more prone than others to the development of pulmonary complications, and because it has been advisable to attempt to shorten the period of immediate postoperative nausea and vomiting, we have used a combination of regional or local infiltration supplemented by intravenous injection of pentothal sodium for the majority of such operations as herniotomy and thyroidectomy. Spinal anesthesia, with or without supplementary pentothal sodium, has proved satisfactory for operations in the lower part of the abdomen. A combination of nitrous oxide and ether usually was employed for operations in the upper part of the abdomen.

The postoperative treatment is as nearly like that given ordinary surgical patients as is possible. Many patients must be restrained, but restraint should be employed only with the desire to keep the patient in bed and to prevent him from disturbing his wound. He should be given as much freedom of motion as possible. Difficulty may be experienced in maintaining these patients in Fowler's position, in using oxygen masks, or in employing nasal suction, but for the most part the patients are cooperative. We have been able to maintain fluid balance by parenteral administration of fluids and by proctoclysis. In some instances oxygen tents have been employed without difficulty. The wounds should be closed in such fashion that they will withstand undue strain. The use of through-and-through, double silkworm sutures has helped to accomplish this.

Summary

Seventy-seven operations were performed on seventy patients who had various types of mental disease. There were six deaths in hospital, with the resulting mortality rate, on the basis of operations, 7.8 per cent. In no instance was the psychosis considered a contraindication to surgical measures, and in no instance was the mental condition aggravated by the operation.

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WILL REBEC, M. D., *Medical Director*

Book Reviews

PSYCHOBIOLOGY AND PSYCHIATRY. By Wendell Muncie, M.D., The C. V. Mosby Company, St. Louis, 1939, pp. 739, $8.00.

Teachers and students of American Psychiatry have long awaited a textbook on psychiatry by Dr. Adolf Meyer setting forth his conceptions and formulations of psychobiology and psychiatry and the results of his teaching and working methods as used at the Johns Hopkins Medical School. This, Dr. Muncie has done for us in his textbook "Psychobiology and Psychiatry" which, as he states, was "written at Dr. Meyer's invitation." While the book contains much of what is Meyerian, it, as Dr. Muncie states, "contains also the fruits of my own researches here and in Europe."

This book is divided into four parts with a foreword by Dr. Meyer. In part I, the author considers the study of normal behavior or Psychobiology in which the difficulties encountered in teaching and the fundamental concepts and aims of psychobiology are discussed. Psychobiology is also compared with some of the other methods of personality study. Here, as throughout the entire book, Dr. Muncie stresses the need for consideration of the patient as an individual in all his relationships, an attitude in which all the facts (a "fact is anything whose presence or absence makes a difference and may become a factor"—Meyer) are investigated and evaluated. As is pointed out, psychobiology is not committed to any particular doctrine or "school of thought" but uses all the methods of science in a pluralistic approach to the study of each individual "as an experiment of nature".

Much of the material of this section is presented in the form of a personality outline study for the student in which the various parts and questions are correlated with the text. The student is required to construct a personality outline for himself, which covers the following headings: I—Preliminary survey; II—Psychobiological assets—A. topical (action tendencies and conative process, cognitive processes and special tools of the personality), B—non-topical diffusely regulative tendencies, C—range and fluctuation and variability of fitness, D—familial and social influences and interdependences, E—sex development and patterns, and F—synthesis and balance of personality.

Part II deals with abnormal behavior. After a chapter devoted to a historical review of psychiatry from the time of Hippocrates through the time of Pinel, Esquirol, Kraepelin, Forel, Charcot, Bernheim, Janet, Kraft-Ebbing, and Freud, to Meyer and the present time and in which psychobiology is compared with Kraepelinian and with psychoanalytic psychiatry, there follows an excellent chapter devoted to methods of examination. These include "(1) The indirect examination or the historical account of the difficulty as focused in the complaints including past performance and family tendencies; (2) the direct examination of the mental and physical status, which gives a cross section of the present behavior; (3) the contributory information from special examinations and the patient's course under observation and treatment." The mental status is presented in detail with questions and methods of eliciting material. Under the physical status is included a very detailed neurological examination in which the nervous system is studied and examined segment by segment; namely, (1) segmental structure function (spinal and brain segments); and (2) supra-segmental structures and functions (cerebellum, basal ganglia, thalamus, hypothalamus and cortex). A specimen behavior sheet and sleep chart are also included.

In subsequent chapters of part II, the main reaction types are presented in detail and the Meyerian terminology of "ergasias" and "pathergasias" are made use of. "Ergasia" means work, labor, activity and refers to normal behavior. By utilizing the prefix "path" (from the Greek "pathos" meaning bad or poor) coupled with "ergasia" Meyer coined the word "pathergasia" meaning abnormal behavior. In like manner, other prefixes (mer-, hol-, hyperthym-, an-, dys-, olig-,) coupled with "ergasia" are used to designate the various reaction types. Unless the student or reader is familiar with the terminology it might be confusing and difficult to understand at first. Some might consider this a just criticism of the book; however, it is the

opinion of the reviewer that this criticism is not justified, for the terminology used has the advantage of possessing specific connotations and meanings, which are more descriptive than the usual terminology employed and which can be learned in a short time.

The author classifies the reaction types or pathergasias into minor and major reactions. The minor pathergasias include the "static constitutional types" (mental deficiency or oligergasia and constitutional psychopathic inferior or psychopathic personalities) and the "plastic psychodynamic reactions" or "complaint disorders and substitutive reactions, 'merergasias' or psychoneuroses."

The major reactions or "holergasias" include the manic-depressive reactions or thymergasias (hyper- and hypo-); paranoia and paranoid states or "topical delusional states and para reactions"; toxic-hallucinatory states or "support disorders" or dysergasia; and the "acquired organic deficit reactions" or anergasias.

Under depressions, the author describes the typical simple retarded depression, agitated depression, involutional melancholia and several other types which, he points out, depend on special personality characteristics, the age period and special precipitating factors. These are listed as anxious depressions and topical depressions, the latter being further classified into hypochondriacal, wherein complaints predominate the clinical picture; tension where there is considerable tension present; catathymic wherein the affect is "bound-down" to certain topics only; thymonoic in which the depression is strongly "intellectualized" and "rationalized" with marked systematized content; and aversion depression characterized by "aversion to the facts of the illness and to the medical care it necessitates."

While these various sub-divisions may appear to complicate the classification since they represent different manifestations of the same underlying affect disturbance, they are, nevertheless, an attempt at a more descriptive, and differential diagnosis and prognostic evaluation of the material.

Likewise, under the parergastic or schizophrenic reactions the author lists six different types (scattering - vagueness and empty dilapidation, dramatic submission and passivity, paranoid development, affective or pseudoaffective features, confusion and delirium-like features, and psychoneurotic manifestations) instead of the usual four. This has its merits in that it allows a description of what is seen instead of making it necessary to try to "pigeon-hole" the patient into one of four types which are not always found in "pure culture".

The organic reactions are subdivided into diffuse defects (senility, Alzheimer's disease, Korsakow's psychosis, general paresis, cerebral arteriosclerosis and traumatic conditions); and local defects (cerebral arteriosclerosis, Pick's disease, brain tumors, and convulsive states). Under brain tumors the author describes three type of tumors, each located in different parts of the brain to demonstrate the various disturbances of function and their clinical manifestations. Also included in this chapter is an excellent description of gnosis, praxia, and language use and the methods of their examination.

In part III the author briefly covers the general basis of treatment and treatment procedures, stressing the need for considering the patient in his totality in terms of his background, life experiences and expectations as well as the situation at hand, emphasizing the value of the personality study. Important therapeutic aids are also discussed as well as special treatments. While brief, this section is adequate for purposes of orienting the student in principles and aims of therapy.

A very interesting and valuable contribution to the text is part IV which presents a "historical survey in bibliography of the development of the concepts underlying the principal reaction sets (except the organic deficit states)."

Many excellent case histories illustrative of the text and reaction sets, longitudinal life charts studies, tables, and graphs, make up a very valuable part of the book.

As Dr. Meyer states in his foreword, "The book speaks for itself. It is a voice from a workshop, making articulate in its own way the mode of working, inquiring and sharing practiced 'for the whole of man and his setting and not only the parts of man.'"

LEWIS BARBATO, M.D.

Galveston, Texas.

BEYOND THE CLINICAL FRONTIERS. By Edward A. Strecker, M.D., W. W. Norton & Co., Inc., St. Louis, 1940, pp. 210, $2.00.

A very readable book written by a shrewd psychiatrist. The content is a series of lectures presented under the auspices of the Thomas W. Salmon Committee, of the New York Academy of Medicine. Doctor Strecker draws pertinent comparisons between individual mental illness and mass behavior in crowds, mobs and war. He describes and exemplifies various types of escape from the difficulties of reality, and evaluates reality critically, as well as the weaknesses of individuals. He finds best promise for the individual and the world, in the future developments of Mental Hygiene.

GLENN MYERS, M.D.
Los Angeles, California.

NEW FACTS ON MENTAL DISORDERS—Study of 89,190 Cases. By Neil A. Dayton, M.D., Charles C. Thomas, Springfield, 1940, pp. 486, $4.50.

Through grants by the Laura Spellman Rockefeller Foundation and the Rockefeller Foundation, Doctor Dayton was enabled to make a statistical study of patients admitted to the Massachussetts State Hospitals during the years 1917-1933. His analysis of the large number of subjects was made as of one huge mass-individual. The period covered by the study contains such important factors affecting mental health as the World War, demobilization, alcoholic prohibition, good times, the economic depression, and relief. Even those persons who abhor statistics will find easy reading and highly informative analyses and interpretations. A summarization at the beginning of each chapter facilitates understanding of the chapter-content. The author finds that the psychoses of old age rise in gigantic proportions, and show a higher incidence than all other psychoses combined. He comments regarding alcoholism: "Patients with mental disorder, both in first admissions and readmissions, demonstrated marked reductions in alcoholism in 1920, the first year of the enforcement of the Eighteenth Amendment. In the years following 1920 they did not return to the high level of alcoholism observed in 1917. Following 1923, alcoholism descends gradually to lower levels. Considering the great incentives to drinking during these years through unemployment and the depression conditions, the lower alcoholism following 1923 would seem to indicate a point of real progress. In mental patients, at least, the Prohibition period is associated with a reduction in the consumption of alcoholic liquors." One has confidence in Doctor Dayton's findings because of his characteristic carefulness in his work, his years of experience as Director of Statistics for the Department of Mental Health of the State of Massachussetts, and the excellent facilities provided by the Department for the pursuit of such studies.

GLENN MYERS, M.D.
Los Angeles, California.

Newsnotes

BOSTON MEETINGS

Of recent news items in Massachusetts, the following may be of interest. (1) On January 18th, 1940, a meeting of the Boston Society of Psychiatry and Neurology took place at the Boston State Hospital. The chief feature of the meeting was a presentation of the results of the "Total Push" method of treatment in mental diseases by Dr. Abraham Myerson and the following representatives of local hospitals: Dr. Kenneth Tillotson, McLean Hospital; Dr. Leo Maltez, Danvers State Hospital and Dr. William Corwin, Metropolitan State Hospital. They reported successful results from this treatment, the most interesting feature being that although the best effects are obtained in fresh material, old chronic cases which usually defy any other method of treatment also seem to improve greatly under this regime. It is true that in the latter, continuous treatment is necessary to sustain the beneficial effects and furthermore that the results are directly proportional to the size and adequacy of personnel, nevertheless, as was pointed out by Dr. Myerson, such experiences tend to reduce the defeatist attitude that has always been assumed

about the old, deteriorated schizophrenic. Two other papers were presented, one on the treatment of epilepsy by Dr. Cohen of Grafton State Hospital, in which a combination of phenobarbital and dillantin sodium was shown to have the most beneficial effect on the reduction of the frequency of convulsions; the other, by Dr. Loman, dealt with studies of brain metabolism by the internal jugular puncture method.

(2) On January 25, 1940 a meeting of the Mass. Psychiatric Society was held at the Boston Psychopathic Hospital. Dr. Benda of Wrentham State School presented a paper on neuropathological findings in cases of mental deficiency. He pointed out that in a large number of cases, the mental defect may be due to recognizable organic diseases, inflammatory or degenerative. In some of these, if the process is recognized early enough, it might be possible to institute therapeutic measures. Also it is fallacious to assume *a priori* that all cases of mental deficiency are of hereditary or constitutional origin. This paper was discussed by Drs. Yakovlev, Bronson Crothers, Solomon and others. Another paper was presented by Dr. Andras Angyal and co-workers from the Worcester State Hospital Research Department on "physiological manifestations of schizophrenic withdrawal." These authors pointed out that the lack of responsiveness that is noted in the psychiatric symptomatology finds its parallels in physiological manifestations. The following were particularly stressed: reduced reaction to thyroid medication, disturbances in response of the vestibular apparatus to stimulation and a decrease in reactivity of the autonomic nervous system. This paper was discussed by Drs. Lindemann, Malamud, Hoskins and Sleeper.

NEW SOCIETY

On April 20, 1940, the psychiatrists and neurologists of the Pacific Northwest met in Tacoma and organized the North Pacific Society of Neurology and Psychiatry. There will be two meetings a year. Fellowship is limited to charter members, numbering about fifty, and new members, who will have to be certified by the National Boards, or who must possess membership in the American Psychiatric or Neurologic Associations. The objectives of the society include the presentation and discussion of scientific papers and the promotion of mental health in the community. The president is Dr. E. D. Hoedemaker of Seattle, and Dr. Charles Larson of Tacoma is the Secretary-Treasurer.

SURGEON-GENERAL PROPOSES CREATION OF A NATIONAL PSYCHIATRIC RESEARCH INSTITUTE

In his annual report, transmitted to Congress in January, Surgeon-General Thomas Parran, of the United States Public Health Service, recommended the establishment of a national neuropsychiatric institute for the prosecution of research in mental and nervous diseases. The scope and purposes of the proposed institute are summarized in a copyrighted article by *Science Service,* published in the January twelfth issue of *Science,* weekly periodical of the American Association for the Advancement of Science.

The article interprets Dr. Parran's proposal as an answer to the long recognized need for a national center, similar in organization and aims to the National Cancer Institute, at which trained scientific investigators in various fields can systematically pursue fundamental studies on the many and complex problems of mental disorder now waiting to be solved. Dr. Parran points out that the aging of our population will greatly increase the total number of sufferers from mental disease, and that therefore methods of prevention will have to be worked out to control future incidence of this disease.

Among recent developments in scientific knowledge, he mentions, for example, the influence of certain vitamins in relieving cases of mental disorder not heretofore recognized as of dietary origin, which opens many possibilities for further research not only of accessory food factors, but of other phases of body metabolism, such as hormones. "The impression is growing among psychiatrists," he says, "that constitutional and metabolic factors may play a role in forms of insanity heretofore thought of as being of psychic origin." The insulin shock treatment now used in one form of mental disease, schizophrenia, causes a great disturbance of body

metabolism. All these factors indicate the need for physiological research on mental and nervous disorders.

The proposed neuropsychiatric institute would be built on the present site of the New York Marine Hospital, giving the staff access to patients and to the library facilities of the metropolis, and the advantages of working under the "stimulating influence of extensive activities and informed personnel in the nervous and mental disease field." The plans call for 350,000 cubic feet of laboratory space for fundamental research and access to 200 patients for clinical study. It is also suggested that the institute should have funds to allot to competent groups throughout the country for research on the problem of nervous and mental disease and epilepsy, and that a national advisory council, similar to the National Advisory Cancer Council, should be established.

Mental Hygiene.

DR. ADOLF MEYER ELECTED TO PRESIDENCY

Dr. Adolf Meyer, Baltimore, Maryland has been elected by the Board of Directors of the National Committee for Mental Hygiene to the presidency of the National Committee. Dr. Meyer succeeds Dr. Arthur H. Ruggles, of Providence, Rhode Island.

$250,000.00 FOR MENTAL DISEASE

Gus T. Hartman, Budget Director for the State of Michigan, announced that he would attempt to have half of next year's $500,000.00 Emergency Fund earmarked for the equipment and operation of additional beds in state mental hospitals.

ADDRESSES

At the Eighty-third Annual Meeting of the Missouri State Medical Association, held April 29 - May 1, 1940 at Joplin, Dr. G. Wilse Robinson, Sr., of Kansas City, reported to the House of Delegates on the activities of the society's Mental Health Committee, of which he is the Chairman.

On April 1, 1940, at a meeting of the University of Virginia Medical Society, Dr. Raymond S. Crispell, Professor of Psychiatry and Neurology at Duke University School of Medicine, discussed *Neuropsychiatry in the Aged.*

Dr. Temple Fay, Philadelphia, Pennsylvania, discussed *Human Refrigeration* before the Delaware County Medical Society at Chester, Pennsylvania, on April 11, 1940.

COMPTON SANITARIUM
AND
LAS CAMPANAS HOSPITAL
COMPTON, CALIFORNIA
(Near Los Angeles)

Compton Sanitarium is a private psychiatric hospital with 120 beds. Emphasis is given psychotherapy by a staff of resident psychiatrists. Other treatment procedures are duly evaluated and administered. Careful records are maintained. There are psychiatrically trained graduate nurses; student nurses through affiliation; nursing attendants; dietitian; occupational therapist; recreational therapist; hydrotherapist; masseuse. Las Campanas Hospital (30 beds) provides adjunct general hospital facilities. Compton Sanitarium and Las Campanas Hospital are approved by the American College of Surgeons.

GLENN MYERS, M.D.,
Medical Director.

HERE'S WHAT THEY SAY!!

A Few of the Unsolicited Comments from General Practitioners on Our First Issues

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